

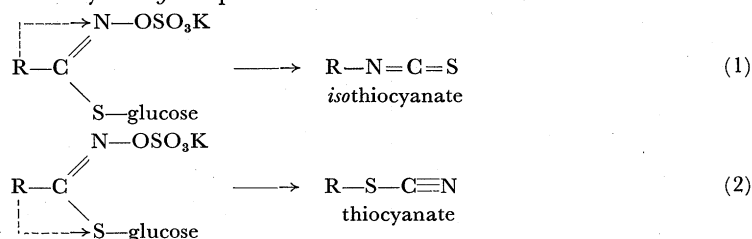
Formation of Esters of Normal Thiocyanic Acid from Sulphur-containing Glucosides in Some *Cruciferae* Plants

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It has long been known that esters of *isothiocyanic* acid and glucose and sulphate are formed enzymatically from the sulphur-containing glucosides present especially in plants of the *Cruciferae* family when the plants are crushed. The enzyme, myrosinase, which catalyzes this reaction is one of the earliest known enzymes.

We have now found that instead of *isothiocyanates* (reaction 1) normal thiocyanates are formed (reaction 2) in many *Cruciferae* plants.



When the seeds or green parts of *Thlaspi arvense* are crushed in water, allyl thiocyanate is formed from the glucoside (sinigrin) found as the only sulphur-containing glucoside in this plant. No allyl *isothiocyanate* (mustard oil) could be detected among the reaction products. In the crushed seeds of *Lepidium ruderae* which contain glucotropaeolin only benzyl thiocyanate is formed. In *Lepidium sativum*, however, both benzyl *isothiocyanate* and benzyl thiocyanate are formed. The formation of alkyl thiocyanates has been found to occur also in *Eruca sativa*, *Isatis tinctoria*, *Diplotaxis* species, *Alliaria officinalis*, and *Peltaria allicea*. The factor which directs and controls the rearrangement so that thiocyanates and not *isothiocyanates* are formed in some plants is still unknown.

Alkyl thiocyanates have a flavour very similar to allicin formed in garlic. Physiologically thiocyanates can have an injurious effect on the organism, *e.g.*, they may interfere with the function of the thyroid gland.

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